NUCLEAR MAGNETIC RESONANCE METHOD OF DETECTING AND MONITORING THE FLOCCULATION KINETICS OF HEAVY FRACTIONS OF A COMPLEX FLUID

ABSTRACT

The invention relates to a nuclear magnetic resonance method of detecting and monitoring the flocculation kinetics of high molecular weight fractions of a complex fluid. The inventive method consists in applying the following to the fluid : a first static polarisation magnetic field and, subsequently, at least a second oscillating pulsed magnetic field which is intended to generate a nuclear magnetic resonance for the nuclei considered and the acquisition of relaxation signals from the nuclei in the fluid. Moreover, said method consists in : detecting, in the relaxation signals, a first part P1 which is representative of the relaxation of said flocculated fractions in the fluid and a second part P2 which is representative of the relaxation of the liquid fraction of the fluid; and determining the flocculation rate of said fractions by comparison with values M<sb>x</sb>(t=0) and M<sb>x1</sb> (t=0) which were extrapolated at the start of the acquisition times of said two parts. The invention is suitable, for example, for monitoring the flocculation kinetics of generally asphaltene polar fractions which are contained in the dissolved state and/or in the stable colloidal state in a liquid hydrocarbon fluid.